

IN THE CLAIMS:

Amend the following claims:

Claims 1-6 (canceled) ✓

Claim 7 (Currently amended): The inverted microscope according to claim 12, further comprising:

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a moving mechanism in which said ~~first~~ second optical element (12) and said ~~second~~ third optical element (512) are disposed, for removing said ~~first~~ second optical element and said ~~second~~ third optical element from said observation optical path at the same time.

Claim 8 (Currently amended): The inverted microscope according to claim 7, wherein:

said first optical element comprises a total reflection prism,

said moving mechanism holds said ~~first~~ second optical element and a total transmission prism at a position corresponding to the imaging optical path with said ~~second~~ third optical element, and selectively switches said ~~first~~ second optical element and said total transmission prism through a movement of said moving mechanism,

light of the observation optical path is directed to the lens-barrel through a reflection on a reflection element after passing through the total transmission prism, and in said moving mechanism, the distance Y which is the distance between said total reflection prism and said total.

Claim 9 (previously amended): An inverted microscope comprising:

an objective lens for magnifying an image of a sample, disposed below the sample;

a first light source for emitting excitation light to illuminate a sample via said objective lens;

a second light source for emitting a laser beam to illuminate the sample via said objective lens;

an image-forming lens for said laser beam for focusing said laser beam on the sample via said objective lens;

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a lens holder for supporting said image-forming lens for said laser beam, the lens holder enables said image-forming lens for said laser beam to move in a direction of an optical axis of said laser beam for adjusting a position of said image-forming lens for said laser beam so that said laser beam is focused on an appropriate position for said objective lens;

a first optical element disposed in an observation optical path along the optical axis of said objective lens, for directing said excitation light from the first light source to the sample, and for transmitting observation light from the sample;

a second optical element disposed in said observation optical path behind said first optical element, for directing said laser beam from said second light source to the sample, and for transmitting said observation light from the sample;

a third optical element for directing light passed through the second optical element to an imaging optical path;

a moving mechanism in which said second optical element and third optical element are mounted, for removing said second optical element and said third optical element from said observation optical path at the same time; and wherein

the image-forming lens for said laser beam is disposed between said second light source and said second optical element.

Claim 10 (canceled)

Claim 11 (previously amended): The inverted microscope according to claim 9, wherein

said third optical element comprises a total reflection prism,

said moving mechanism holds said third optical element and a total transmission prism with said second optical element, and selectively switches said third optical element and said total transmission prism in said observation optical path through a movement of said moving mechanism,

light of the observation optical path is directed to a lens-barrel through a reflection on a reflection element after passing through the total transmission prism, and

in said moving mechanism, the distance Y which is the distance between said total reflection prism and said total transmission prism is set to be longer than a half of the diameter X which is the maximum diameter of a light flux of said observation optical path.

Claim 12 (new): An inverted microscope comprising:

an objective lens disposed below a sample;

an image-forming lens for focusing observation light from said objective lens, said image-forming lens imaging said observation light at a focal plane;

a reflecting mirror for directing transmitted light passing through said image-forming lens to a front side of the microscope;

a first optical element disposed between said image-forming lens and said reflecting mirror, for directing light from said image-forming lens to the backside of the microscope to form an imaging optical path, which backside is the opposite side of the front side of the microscope on which said lens-barrel is disposed;

a port in said microscope, said imaging optical path passing through said port;

an imaging device coupled to said port, said imaging device having an image plane substantially corresponding to the focal plane of the image-forming lens;

a first light source, located on said backside, for emitting excitation light to illuminate the sample via said objective lens;

a second optical element disposed in an observation optical path along the optical axis of said objective lens, for directing said excitation light from the first light source to the sample, and for transmitting observation light from the sample;

a second light source for emitting a laser beam incident on the sample via said objective lens;

a third optical element disposed in said observation optical path behind said first optical element, for directing said laser beam from said second light source to the sample, and for transmitting said observation light from the sample and directing said observation light to said first optical element; and

an image-forming lens for said laser beam disposed between said second light source and said second optical element, for focusing said laser beam on the sample.

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Claim 13 (new): The inverted microscope according to claim 12, and further including a lens holder for supporting said image-forming lens for said laser beam to enable movement of said image-forming lens for said laser beam in a direction of an optical axis of said laser beam, said lens holder adjusting a position of said image-forming lens for said laser beam so that said laser beam is focused on an appropriate position for said objective lens.

Claim 14 (new): An inverted microscope according to claim 12 and further including:
a first reflected illuminator coupled to the first light source, for directing light from the first light source;

a relay tube coupled to the first reflected illuminator, having a mirror inside for deflecting light emitted from the first light source and passed through the first reflected illuminator; and

a second reflected illuminator coupled to the relay tube for directing light deflected on the mirror in the relay tube to inside of the microscope.

Claim 15 (new): An inverted microscope according to claim 12 and further including:

a lens-barrel disposed on the front side of the microscope; and

a reflecting mirror for directing transmitted light passing through said first image-forming lens to the lens-barrel on the front side of the microscope.

Claim 16 (new): An inverted microscope according to claim 12 wherein said second optical element comprises a fluorescent cube disposed between the objective lens and the first image-forming lens, for directing light passed through the second reflected illuminator to the objective lens from the back side of the microscope.

Claim 17 (new): A microscope comprising:

an image-taking port for mounting an imaging device; and

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an illuminator for directing light from an outside light source into the microscope, the illuminator having an elongated shape such that the light source and the imaging device do not physically interfere.

Claim 18 (new): The microscope according to claim 17, wherein the image-taking port and the illuminator is provided on the same side of the microscope.

Claim 19 (new): The microscope according to claim 18, wherein the microscope has a front side and a back side and the image-taking port and the illuminator are provided on the back side of the microscope.

Claim 20 (new): The microscope according to claim 17, wherein the light source includes a lamp housing.

Claim 21 (new): The microscope according to claim 20, wherein the location of the lamp housing (302) is based on the shape of the illuminator and is on the left or right of the microscope.

Claim 22 (new): The microscope according to claim 17, wherein the shape of the illuminator is not straight.

Claim 23 (new): The microscope according to claim 22, wherein the illuminator has a reflecting surface in inside.

Claim 24 (new): The microscope according to claim 17, wherein the illuminator has a lens system to transform passing light into parallel light.

Claim 25 (new): The microscope according to claim 17, wherein the microscope is an inverted type.

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Claim 26 (new): An illuminator for directing light from an outside light source into a microscope comprising:

an optical system for transforming passing light into parallel light to enable the light to pass through an elongated illuminator.

Claim 27 (new): The illuminator according to claim 26, further comprising

a reflecting surface provided in the illuminator to make the shape of the illuminator a curved one.

Claim 28 (new): A microscope comprising:

- an objective lens;
- an ocular lens provided in an observation optical path of the objective lens;
- a laser for emitting a laser beam;
- a first optical element for directing the laser beam toward a sample along the observation optical path;
- a second optical element for directing the light reflected from the sample away from the optical observation path in a direction other than the ocular lens; and
- a moving mechanism on which the first optical element and second optical element are provided, the moving mechanism places the first optical element and second optical element (in the observation optical path at the same time and removes the first optical element and second optical element from the observation optical path through the movement of the moving mechanism.

Claim 29 (new): The microscope according to claim 28, wherein the first optical element includes a dichroic mirror.

Claim 30 (new): The microscope according to claim 28, wherein the second optical element includes a mirror.

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Claim 31 (new): The microscope according to claim 28, wherein the reflected light deviated from the observation optical path by the second optical element is directed to a port for mounting an imaging device.

Claim 32 (new): The microscope according to claim 28, wherein the microscope is an inverted type.

Claim 33 (new): A microscope comprising:

- an objective lens;
- an ocular lens provided in an observation optical path of the objective lens ;
- a first optical element for directing light reflected from a sample away from the optical observation path in a direction other than the ocular lens;
- a second optical element for directing light reflected from the sample along the observation optical path towards the ocular lens; and
- a moving mechanism on which the first optical element and the second optical element are provided, the moving mechanism places either the first optical element or second optical element in the observation optical path at any one time.

Claim 34 (new): The microscope according to claim 33, wherein the first optical element and second optical element are separated by more than half of the diameter of the observation light bundle.

Claim 35 (new): The microscope according to claim 33, further comprising:

- a laser for emitting a laser beam;
- a third optical element for directing the laser beam toward the sample along the observation optical path, wherein the third optical element is also provided on the moving mechanism, the moving mechanism places the third optical element and first optical element in the observation optical path at the same time and removes the third optical element and first optical element from the observation optical path at the same time through the movement of the moving mechanism.

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36. (New) An inverted microscope comprising:

- a sample stage;
 - an objective lens disposed below the sample stage;
 - a second light source for emitting a laser beam incident on the sample stage via said objective lens;
 - an optical element disposed in said observation optical path behind said first optical element, for directing said laser beam from said second light source to the sample stage, and for transmitting said observation light from the sample and directing said observation light to said first optical element; and
 - an image-forming lens for said laser beam disposed between said second light source and said second optical element, for focusing said laser beam on the sample.
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